

# ENVIRONMENTAL LEAD EXPOSURE AND ODDS OF EARLIER PUBERTAL ONSET

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**Background and Aims:** Evidence for associations between lead (Pb) and late onset of puberty have come primarily from cross-sectional studies. Early life exposure to lead may be important for puberty onset because of the long-term effects of lead on the endocrine system. We examined the association of maternal bone Pb, a marker of cumulative prenatal Pb exposure, with odds of earlier pubertal onset.

**Methods:** Maternal bone Pb was assessed at 1-month postpartum using in vivo K-X-ray fluorescence (K-XRF). Multivariable logistic regression was used to investigate the association of prenatal Pb levels with onset of puberty as assessed by self-reported Tanner stage greater or equal than 2 for genitalia (G2 among boys), breast (B2 among girls) and pubic hair development (P2 for each sex), adjusting for child's age and maternal education.

**Results:** There were 69 girls and 59 boys aged 6 to 15 years with Tanner staging and prenatal Pb measures. Among girls, mean age at study visit was 8.9 years (SD= 2.1); 39% were at stage B2 or above and 16% at stage P2 or above. Mean age at menarche was 10.6 years (SD= 1.7). Among boys, mean age was 9.1 years (SD= 2.2); 66% were at stage G2 or above, and 17% at stage P2 or above. Associations were primarily null between maternal bone Pb and odds for earlier or later onset of puberty, though slightly higher odds for later puberty onset with increased Pb levels was detected (for example for boy's pubic hair OR=1.09, 95% CI= 0.94 to 1.27).

**Conclusion:** These results suggest that prenatal Pb levels are not associated with odds of earlier or later pubertal onset in a longitudinal cohort study in Mexico, but interpretation is limited by small sample size. Investigation of this association in a larger study sample is warranted.